

WHAT IS CLAIMED IS:

1. A backlight assembly comprising:

a first lamp unit that generates light; and

5 a light guide plate including:

a light exiting surface;

a light reflecting surface that reflects a light toward the light exiting surface; and

side surfaces that connect the light exiting surface and the light

10 reflecting surface, the side surfaces including a first light incident surface,

the first lamp unit being disposed adjacent to the first light incident surface, and the first light incident surface being inclined inwardly from the light exiting surface to form an inclination angle that is smaller than or substantially equal to $(90 - 2\sin^{-1}(n_2/n_1))^{\circ}$, wherein ' n_1 ' is a refractive index of the light guide plate, and ' n_2 ' is a
15 refractive index of a material between the lamp and the light incident surface.

2. The backlight assembly of claim 1, wherein the refractive index n_2 of the material between the lamp and light incident surface is about 1.

20 3. The backlight assembly of claim 2, wherein the light guide plate comprises polymethylmethacrylate (PMMA).

4. The backlight assembly of claim 1, wherein the side surfaces of the light guide plate further comprises a second light incident surface that is inclined
25 inwardly from the light guide plate to form an inclination angle that is smaller than or

substantially equal to $(90 - 2\sin^{-1}(n_2/n_1))^{\circ}$, the backlight assembly further comprises a second lamp unit being disposed adjacent to the second light incident surface.

5 5. The backlight assembly of claim 1, wherein the first lamp unit comprises:

at least one lamp spaced apart from the first light incident surface;

a first lamp electrode line being electrically connected to a first end of the lamp;

10 a second lamp electrode line being electrically connected to a second end of the lamp; and

a lamp reflector that reflects a light toward the first light incident surface.

6. The backlight assembly of claim 5, wherein the lamp reflector comprises:

15 a first lamp reflecting plate that extends in parallel with the light exiting surface;

a second lamp reflecting plate having a first end portion and a second end portion, the first end portion being connected to the first lamp reflecting plate, the second lamp reflecting plate being in parallel with the first light incident surface; and

20 a third lamp reflecting plate connected to the second end portion of the second lamp reflecting plate, the third lamp reflecting plate being in parallel with the light reflecting surface.

7. The backlight assembly of claim 6, wherein the second lamp
25 electrode line is pulled out in a direction of the first end of the lamp along a backside

of the second lamp reflecting plate, and the second lamp electrode line is fixed to the back side of the second lamp reflecting plate, such that the second lamp electrode line is adjacent to the third lamp reflecting plate.

5 8. The backlight assembly of claim 1, wherein the first lamp unit comprises:

first and second lamps spaced apart from the light incident surface by a same distance; and

10 a lamp reflector that reflects light generated from the first and second lamps toward the light incident surface.

9. The backlight assembly of claim 8, wherein the lamp reflector comprises:

a first lamp reflecting plate being in parallel with the light exiting surface;

15 a second lamp reflecting plate facing the first light incident surface, the first lamp being interposed between the light incident surface and the second lamp reflecting plate, the second lamp reflecting plate being connected to the first lamp reflecting plate to form a first connection portion;

20 a third lamp reflecting plate facing the first light incident surface, the second lamp being interposed between the light incident surface and the third lamp reflecting plate;

a fourth lamp reflecting plate connecting the second lamp reflecting plate and the third lamp reflecting plate; and

25 a fifth lamp reflecting plate being in parallel with the light reflecting surface, the fifth lamp reflecting plate being connected to the third lamp reflecting plate to

form a second connection portion.

10. The backlight assembly of claim 9, wherein a distance between the first lamp and the second lamp reflecting plate is substantially same as a distance
5 between the second lamp and the third lamp reflecting plate.

11. The backlight assembly of claim 10, wherein the lamp unit further comprises a first electrode line that is electrically connected to a first end of the first and second lamps, and a second electrode line that is electrically connected to a
10 second end of the first and second lamps.

12. The backlight assembly of claim 11, wherein the second electrode line is pulled out in a direction of the first end of the first and second lamps along a backside of the third lamp reflecting plate, and the second lamp electrode line is
15 fixed to the back side of the third lamp reflecting plate, such that the second lamp electrode line is adjacent to the fifth lamp reflecting plate.

13. The backlight assembly of claim 9, wherein the first and second connecting portion are chamfered to form sixth and seventh lamp reflecting plates
20 respectively.

14. The backlight assembly of claim 1, further comprising:
optical sheets disposed over the light exiting surface of the light guide plate,
the optical sheets enhancing optical characteristics;
25 a reflection plate disposed under the light reflecting plate of the light guide

plate, the reflection plate reflecting a light that is leaked from the light guide plate toward the light guide plate; and

a receiving container receiving the lamp unit and the light guide plate.

5 15. A liquid crystal display apparatus comprising:

a backlight assembly including a) a first lamp unit that generates light, and b) a light guide plate having i) a light exiting surface, ii) a light reflecting surface that reflects light generated from the first lamp unit toward the light exiting surface, and iii) side surfaces that connect the light exiting surface and the light reflecting surface, 10 the side surfaces including a first light incident surface, the first lamp unit being disposed adjacent to the first light incident surface, and the first light incident surface inclining inwardly from the light exiting surface to form an inclination angle that is smaller than or substantially equal to $(90 - 2\sin^{-1}(n_2/n_1))^{\circ}$, wherein 'n₁' is a refractive index of the light guide plate, and 'n₂' is a refractive index of a material between the 15 lamp and the light incident surface,

a display unit disposed over the light exiting surface of the light guide plate so as to display an image by using a light that exits from the light exiting surface; and a top chassis that fixes the display unit to the backlight assembly.

20 16. The liquid crystal display apparatus of claim 15, wherein the refractive index n₂ of the material between the lamp and light incident surface is about 1.

25 17. The liquid crystal display apparatus of claim 16, wherein the light guide plate comprises polymethylmethacrylate (PMMA).

18. The liquid crystal display apparatus of claim 15, wherein the side surfaces of the light guide plate further comprises a second light incident surface that inclines inwardly from the light guide plate to form a inclination angle that is smaller than or substantially equal to $(90 - 2\sin^{-1}(n_2/n_1))^{\circ}$, the backlight assembly further comprises a second lamp unit being disposed adjacent to the second light incident surface.

19. The liquid crystal display apparatus of claim 15, wherein the first lamp unit comprises:

at least one lamp spaced apart from the first light incident surface;

a first lamp electrode line being electrically connected to a first end of the lamp;

a second lamp electrode line being electrically connected to a second end of the lamp; and

a lamp reflector that reflects a light toward the first light incident surface.

20. The liquid crystal display apparatus of claim 19, wherein the lamp reflector comprises:

a first lamp reflecting plate that extends in parallel with the light exiting surface;

a second lamp reflecting plate having a first end portion and a second end portion, the first end portion being connected to the first lamp reflecting plate, the second lamp reflecting plate being in parallel with the first light incident surface; and

a third lamp reflecting plate connected to the second end portion of the

second lamp reflecting plate, the third lamp reflecting plate being in parallel with the light reflecting surface.

21. The liquid crystal display apparatus of claim 20, wherein the second lamp electrode line is pulled out in a direction of the first end of the lamp along a backside of the second lamp reflecting plate, and the second lamp electrode line is fixed to the back side of the second lamp reflecting plate, such that the second lamp electrode line is adjacent to the third lamp reflecting plate.

22. The liquid crystal display apparatus of claim 15, wherein the first lamp unit comprises:

first and second lamps spaced apart from the light incident surface by a same distance; and

a lamp reflector that reflects light generated from the first and second lamps toward the light incident surface.

23. The liquid crystal display apparatus of claim 22, wherein the lamp reflector comprises:

a first lamp reflecting plate being in parallel with the light exiting surface;

a second lamp reflecting plate facing the first light incident surface, the first lamp being interposed between the light incident surface and the second lamp reflecting plate, the second lamp reflecting plate being connected to the first lamp reflecting plate to form a first connection portion;

a third lamp reflecting plate facing the first light incident surface, the second lamp being interposed between the light incident surface and the third lamp reflecting

plate;

a fourth lamp reflecting plate connecting the second lamp reflecting plate and the third lamp reflecting plate; and

a fifth lamp reflecting plate being in parallel with the light reflecting surface,
5 the fifth lamp reflecting plate being connected to the third lamp reflecting plate to form a second connection portion.

24. The liquid crystal display apparatus of claim 23, wherein a distance
between the first lamp and the second lamp reflecting plate is substantially same as
10 a distance between the second lamp and the third lamp reflecting plate.

25. The liquid crystal display apparatus of claim 24, wherein the lamp
unit further comprises a first electrode line that is electrically connected to a first end
of the first and second lamps, and a second electrode line that is electrically
15 connected to a second end of the first and second lamps.

26. The liquid crystal display apparatus of claim 25, wherein the second
electrode line is pulled out in a direction of the first end of the first and second lamps
along a backside of the third lamp reflecting plate, and the second lamp electrode
20 line is fixed to the back side of the third lamp reflecting plate, such that the second
lamp electrode line is adjacent to the fifth lamp reflecting plate.

27. The liquid crystal display apparatus of claim 23, wherein the first and
second connecting portion are chamfered to form sixth and seventh lamp reflecting
25 plates, respectively.

28. The liquid crystal display apparatus of claim 15, further comprises:
optical sheets disposed over the light exiting surface of the light guide plate,
the optical sheets enhancing optical characteristics;
5 a reflection plate disposed under the light reflecting plate of the light guide
plate, the reflection plate reflecting a light that is leaked from the light guide plate
toward the light guide plate; and
a receiving container receiving the lamp unit and the light guide plate.